Summary of LLNL Report Methods and Results by Organization and Function

Prepared by Udi Helman, LLNL Peer Review Committee

DRAFT FOR DISCUSSION, June 16, 2014

This table is proposed for inclusion in the report documentation as a key for readers across the state agencies in California and elsewhere, to identify sections that may be of particular interest to certain divisions or programs. These include sections on methods as well as results. Each program is listed under the key agency, but some applications, notably the operational modeling under the CPUC Long-term Procurement Planning (LTPP) proceeding, are inter-agency efforts.

The matrix below is in draft form for discussion purposes. Some parts of the matrix are incomplete.

Institution/Division/Program	**Report Section**	**Contents**
California Public Utility Commission		
Storage program	Full report but particularly Ch. 7-3, 8-12	-Sensitivities on LTPP modeling -Market price forecasting -Effect of storage attributes and penetration on production costs -Storage providing ancillary services -Storage supporting stability -Cost-benefit analysis of storage at different penetrations
Resource Adequacy program	Ch. 2 Ch. 3	-Wind and solar forecasting (for use in ELCC model) - flexible capacity analysis

Long-term Procurement Planning	Ch. 2 Ch. 3,7 Ch. 6 Ch. 7 Ch. 10,12	-Value of forecast improvements in reducing integration costs -Extensions of LTPP modeling to include stochastic components -Replication of LTPP scenarios -Sensitivities on LTPP public scenarios -Stochastic production simulation modeling -Assumptions about DR and Storage *-Results relevant to LTPP joint assumptions and scenarios*
Renewable Portfolio Standard		(Selected applications to development of least-cost, best-fit valuation of wind and solar)
Demand Response	Ch. 7-2 Ch. 9	-Modeling DR in production simulation/LTPP scenarios -Value of DR

California ISO

Transmission planning	Ch. 6 Ch.11	-Stochastic production simulation modeling -System stability modeling -System stability modeling
Renewable Integration and Market Quality	Ch. 3 Ch. 8 Ch. 9-10	-Identification of days of interest with high net load ramps/Forecasting net load ramps (flexible capacity) -Market price forecasting -DR and storage providing Regulation and Energy
Operations – renewable forecasting	Ch. 2 Ch. 3	-Forecasting methods -High net load ramp forecasting; clustering methods
	Ch. 3	-Identification of days of

Market Development	Ch. 8 Ch. 9-10	interest with high net load ramps/Forecasting net load ramps (flexible capacity) -Market price forecasting -DR and storage providing Regulation and Energy

California Energy Commission

California investor-owned utilities

Resource planning	Full report but particularly Ch. 7-3, 8-12	-Stochastic production simulation -Sensitivities on LTPP scenarios -Market price forecasting -Effect of storage attributes and penetration on production costs -Storage providing ancillary services -Storage supporting stability -Cost-benefit analysis of storage at different penetrations
Storage procurement	Ch. 8 Ch. 10	(*Results or methods directly relevant to valuation of storage RFOs, bilateral contracts or utility-owned projects*) -Market price forecasting -Valuation of storage attributes and penetration